Mixed media in distance learning - Integrating web-based resources

Book Section

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Abstract

Print has been the dominant medium in distance learning courses , but such courses now present opportunities to give students access to a rich media environment that not only includes well-organised teaching material prepared for them, but also large resources that they can organise for themselves. The World Wide Web offers a vast amount of information that students can access, but they must devise their own methods of study and, most importantly, they must develop critical and selective skills. This paper discusses the way in which study skills appropriate to media-rich distance learning are being embedded in a new Science course.

Introduction

Teaching using multiple media is an established technique for distance learning, exemplified by courses from the Open University in Britain. The educational effectiveness of such teaching methods has been extensively researched. In theory, the transfer of such multiple media courses to a computer should not present great educational challenges. In fact, we have yet to develop a fully evaluated model for multimedia teaching presentations on a computer that shows, unequivocally, that there is effective learning. The use of multimedia to provide the equivalent of an encyclopaedia gives students access to information, but in a form where they have to develop their own explorative strategy. The problems faced by the student in both navigation and learning are apparent and various alternative approaches have been tried, most notably the highly restricted linear presentation of information that has its origins in Computer-based training (CBT) packages and TV production. The World Wide Web is the encyclopaedia model on a massive scale. Can this scale be managed such that the use of WWW resources can be integrated into multimedia based courses, and be educationally effective?

The WWW can be used as an instructional tool for delivering information to students, though whether this is an effective use is not known. However, the resources available via the web can be used in creating learning opportunities for students, for example in undertaking projects or developing their skills in group work. Here, the WWW is used as a cognitive tool (Jonassen & Reeves, 1996). It is this particular use of the WWW that seems to us to be a particularly valauble component of a multiple-media course.

Developing a multiple media course

We are developing a distance-learning course that uses a wide range of visual media presented primarily via a computer, with textbooks, electronic communications and the WWW. Large resource files such as video, graphics and sound are supplied on CD-ROM with the WWW providing text updates and access to other information sources. Students will be expected to work at home and possess a multimedia computer with a modem. While there will be electronic communication in the course, together with web-based projects, there is no intention to provide course material via the web for students to download. The high graphics and video content precludes such a solution and CD_ROM remains the distribution medium of preference.

The core of the course is the CD-ROM, which also provides the study guide, communications and assessment (Figure 1). The course is linked to a core set-book, Lewin, (1993) and each section that students read has an introduction and a conclusion in the study guide on the CD-ROM, written by an expert. . There are a number of additional set books and a commercial CD-ROM. The range of resources provided on the CD-ROM, fall into two types. Some are specifically for study at appropriate points in the course. Other resources are available for students to study as they wish, for example when doing assignments. However, the whole range of resources can be used in teaching organisational skills.

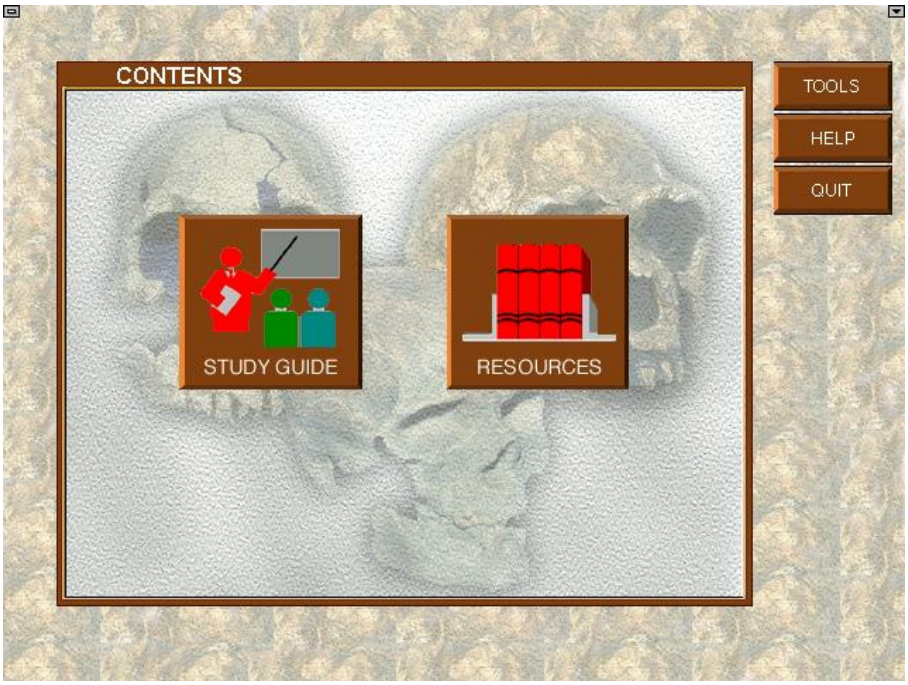

Figure 1 The opening screen of the 'Emergence of Humans' CD-ROM.

The software used for the interface is the 'Scholar's Desktop' (Davies, 1995), originally developed for use in teaching Biodiversity, through the use of multimedia. This is a software shell that provides a wide range of functions, designed for use by students as an explorative tool to access a substantial library of resources.

Tuition will be entirely electronic. In addition to email and First Class conferencing, leading experts in the field will be available to answer students questions via Knowledge Tree. Knowledge Tree is an interactive Question and Answer utility that was developed at the University of Nottingham (UK) (Davies, 1995). It builds up into a library of information available on-line. Both text and graphics can be used in questions and answers. . Questions posed by students are answered by experts, the course team or by other students. The library of question is moderated by the course team, who can add comments or even delete whole interchanges! Suitable sets of interchanges can be restructured to form a page on the course web site.

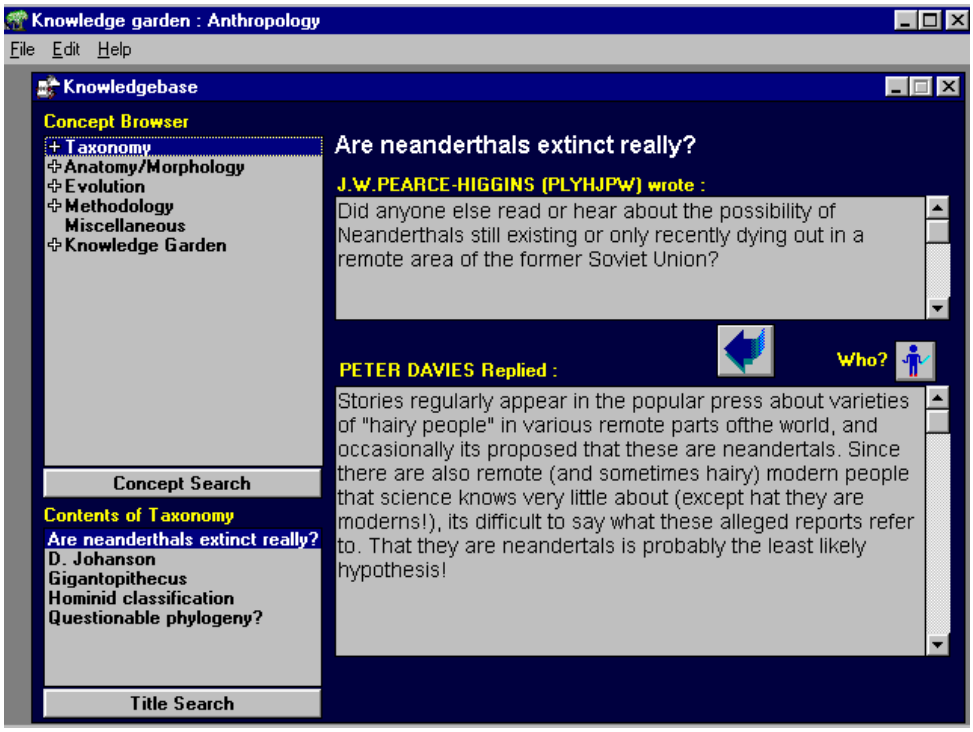

Figure 2 A sample page from a Knowledge Tree exchange on Neanderthals

Netscape 2 is provided on the CD-ROM, with a course Home page. From this home page, students can access a variety of sites that relate to the course (Figure 3). These sites have been pre-selected by the course team. Students can, of course, simply search the net themselves, but we intend to have a library of sites where the information available is known to be reliable. For students who have no experience of acquiring and sifting information available via the WWW, a CD-ROM is being produced that simulates, on an off-line machine, the experience of being on-line. It provides tuition and practical examples, using web sites that are stored on the CD-ROM. Thus students get experience in using the WWW without incurring line connection and Internet Service Provider costs – an important feature for many remote students who have low incomes.

The course will have a project assignment that is based on the teaching material provided but which requires students to engage in a search for new information available from web-sites. This information will have to be incorporated into the project, which must be produced using the full range of IT techniques. The resources available on the CD-ROM include galleries of still images

and video clips, a Bibliography that students can add to, extracts from papers and books and audio commentary files. These provide a substantial resource for the project work. We hope that projects will be submitted electronically, when secure systems have been tested.

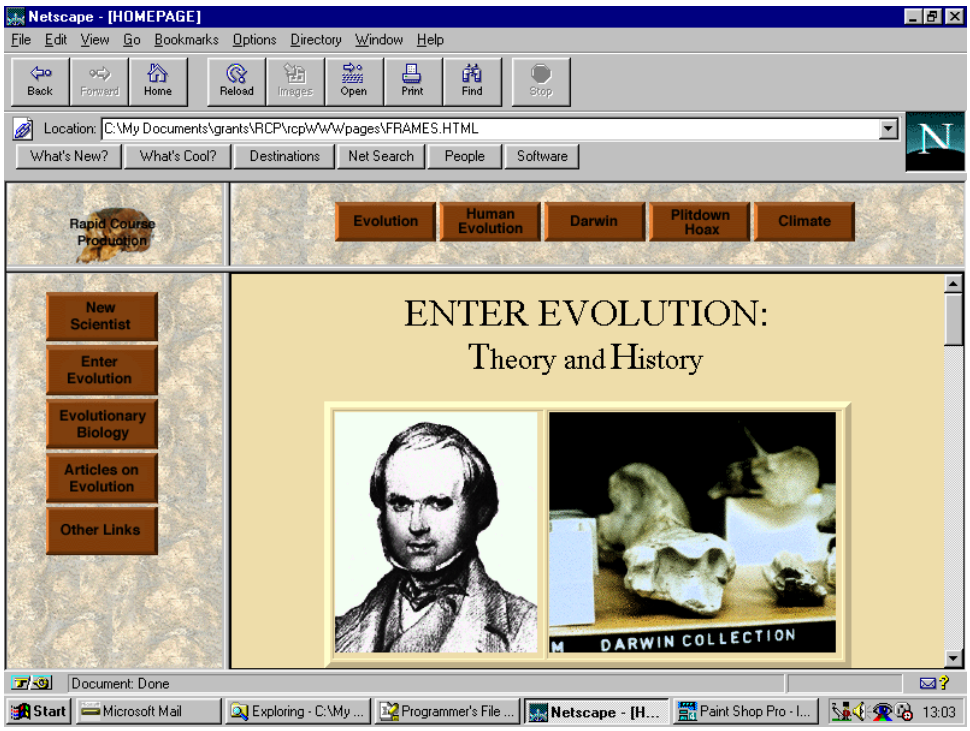

Figure 3 The home page for the course, displaying a live web-site on Evolution, in the window.

Testing and evaluation

The WWW has enormous potential in education, but the value does depend on how it is used. The pilot course described here sets out to integrate information available from the WWW into a general library of resources and to encourage students to use the resources both selectively and critically. To evaluate the effectiveness of the teaching methods, the course will be tested initially with students taking an anthropology module at a conventional university. Their performance will then be compared with that of a group of volunteer distance learners. It is hoped that data from this comparison will not only validate this approach to using the WWW but will also allow conclusions about the educational effectiveness of such a multiple media package.

References

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Acknowledgments

The authors are members of a team involved in the production of multimedia teaching material. They acknowledge, with thanks, the contributions of Tracy Carlton, Mike Dodd, George Ford, Brain Richardson, Ronnie Singer and Gary Tucknott and Nicholas Watson (BBC). The project was funded by the Open University Office for Technology Development.